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*Notes on the foreign fishery
trade and local fisheries of ...*

William A. Wilcox

HARVARD UNIVERSITY.



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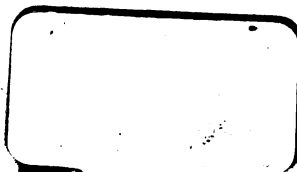
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October 28, 1902.



U. S. COMMISSION OF FISH AND FISHERIES,
GEORGE M. BOWERS, Commissioner.

NOTES

ON THE

FOREIGN FISHERY TRADE AND LOCAL FISHERIES

OF

PORTO RICO.

BY

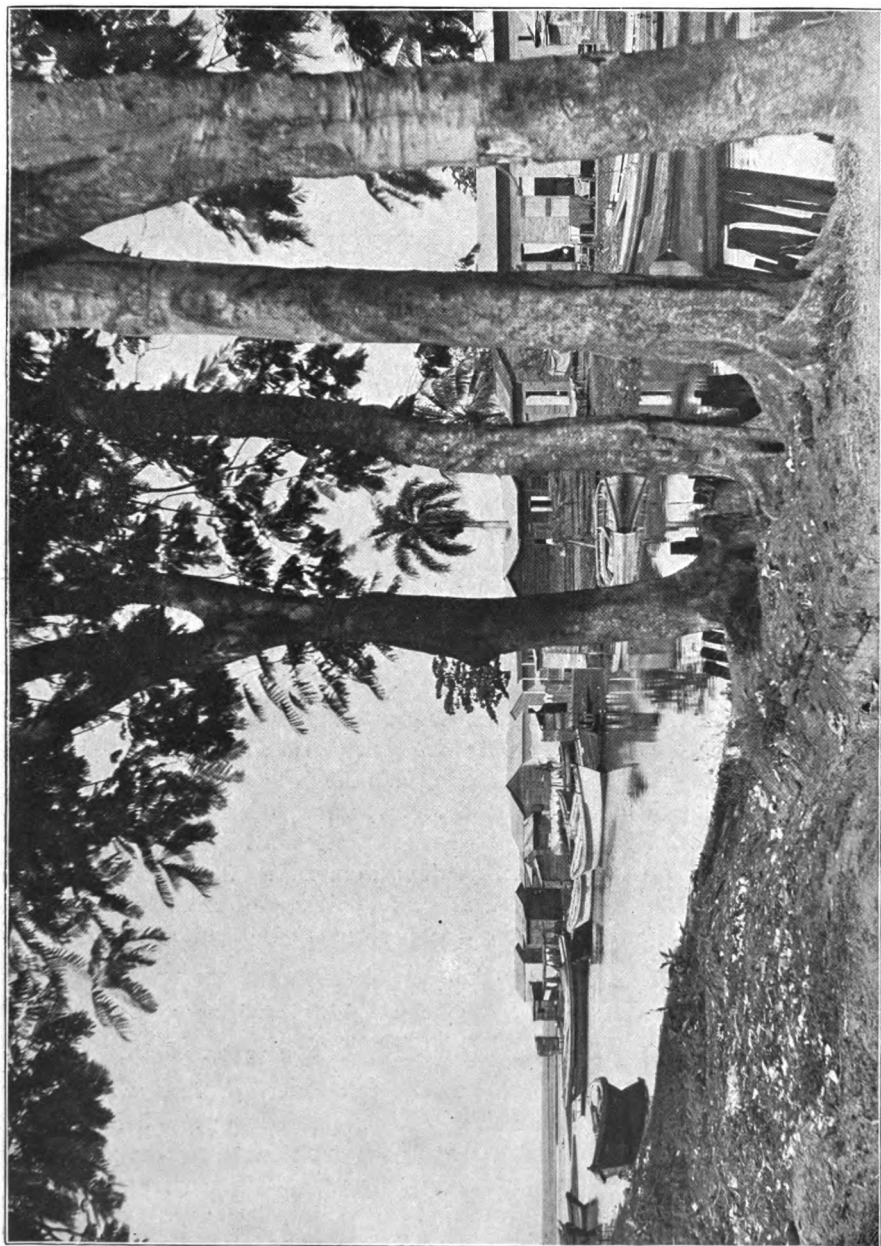
W. A. WILCOX,
Agent United States Fish Commission.

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FOREIGN FISHERY TRADE AND LOCAL FISHERIES
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By W. A. WILCOX,
AGENT OF THE UNITED STATES FISH COMMISSION.



FISH BOATS AND HOMES OF FISHERMEN AT MAYAGUEZ, PORTO RICO.

OCT 28 1902

NOTES ON THE FOREIGN FISHERY TRADE AND LOCAL FISHERIES OF PORTO RICO.

BY W. A. WILCOX,
Agent of the United States Fish Commission.

INTRODUCTION.

The writer was detailed to accompany an expedition on the United States Fish Commission steamer *Fish Hawk* to Porto Rico for the purpose of investigating the condition of the commercial fisheries. Inquiries were made respecting the quantity and value of fishery products imported, their source and character, together with the methods of handling them and the expenses connected therewith. The local fisheries of Porto Rico and its outlying islands were also investigated.

The steamer arrived at San Juan on January 2, 1899. The work was at once commenced at that port, after which the several places of importance in connection with the investigations around the island were visited. Of the large number of small streams, only a few could be visited, from lack of time. None of them have extensive fisheries, but many supply a local demand for fresh fish.

There are very few good harbors in Porto Rico, and in all except San Juan vessels landing or loading cargoes are obliged to use lighters, thus adding considerably to the expenses.

The statistics relating to the imports here presented were copied from the original records at the custom-houses. Those concerning the local fisheries were obtained through personal interviews with fishermen and other persons interested in the subject. The records of the custom-houses were found complete for a series of years and gave the statistics of imported fishery products. Unfortunately the records of local fisheries had at nearly every port been destroyed or taken away.

The metric system of weights and measures is used in Porto Rico. At the custom-houses weights are shown in kilograms. In this report they are also given in pounds.

The work of the expedition was advanced by assistance furnished by Brig. Gen. F. D. Grant, commanding the district of San Juan, Capt. James A. Buchanan, collector for Porto Rico, and other Government and Porto Rican officials, and De Ford & Co., bankers and fiscal agents of the United States at San Juan. Information was freely given by the leading importers, fishermen, and persons interested in the fisheries, to whom acknowledgments are hereby made.

USE OF FISHERY PRODUCTS IN PORTO RICO.

Porto Rico is reported to have between 800,000 and 1,000,000 inhabitants. That fishery products form an important portion of the food supply of the island is shown by the importation, in 1897, of about 34,156,000 pounds of dried, pickled, canned, and other fish valued at \$2,123,931. The total imports for the year furnished for each inhabitant an average of from 30 to 40 pounds of fish. The value of imported fishery products, with the duty paid on the same during the five years named, was as follows:

Year.	Value.	Duty.
1893.....	\$1,325,073.52	\$87,677.16
1894.....	1,649,601.42	94,834.50
1895.....	1,987,676.56	122,087.99
1896.....	1,815,010.89	117,497.31
1897.....	2,123,931.46	139,661.35

With the exception of occasional small shipments, principally of canned fish, to grocers, this large amount of imported fish is handled by a comparatively small number of commission merchants, whose principal business is in sugar and coffee. In some cases the merchants own and work plantations, and all of them make large advances on crops which they dispose of by direct sales or as forwarding agents, thus providing return cargoes to vessels arriving with fish. A number of firms have branch houses at the three leading ports of Ponce, San Juan, and Mayaguez, where they have long been established. The old leading firms have a high rating for integrity and financial standing.

The manner of receiving and handling fish is similar at all ports, with some variations due to port charges, different climatic conditions, etc.

Dry and pickled fish are received more or less regularly throughout the year, mostly from Halifax and Lunenburg, Nova Scotia. A few cargoes arrive from Yarmouth, Nova Scotia, and occasionally a cargo comes from St. Johns, Newfoundland. The total receipts of dry and pickled fish in 1897 amounted to 33,449,422 pounds, being from the following localities:

	Pounds.
North American British Possessions.....	28,048,735
United States.....	4,909,141
All other sections.....	491,546

This amount approximated 85 per cent of dry fish and 15 per cent of pickled fish, the proportions of dry fish by species being 90 per cent cod, 7 per cent haddock, and 3 per cent hake. As received, the proportion of a cargo of 2,000 quintals would be about as follows: 425 tierces, 100 to 150 drums, 100 boxes, 100 half-boxes. Tierces contain 450 pounds net, drums 125 to 140 pounds, boxes 100 pounds, half-boxes 50 pounds.

The climate of Porto Rico, with its months of warm, damp weather and much rain, is very trying on dry fish. If not properly cured they will soon turn red or become soft and otherwise unmarketable. Fish from the United States would probably have to be cured harder than

is customary for home or northern demand. They should be well but not too heavily salted, and well dried. Small-sized cod that will pack in tierces and drums without bending are preferred to large fish, except for the small amount packed in boxes, these being for the local city trade, in which large fish are desirable.

In past years consumers of dry and pickled fish in Porto Rico have apparently been more concerned as to prices than quality, much inferior fish being consequently sent to this island. Natives often buy fish, if of low price, that would not be used in the United States. Occasionally fish are condemned and destroyed by the city officials. The present indications point to a demand for a better quality of goods.

December, January, February, and March are the best months for keeping fish in good condition in Porto Rico. The largest demand is in January, February, March, and April.

Pickled fish are not much used. Split herring are preferred to round, on account of keeping better, and bring \$1 a barrel more.

Alewives are not desired and are seldom received.

Mackerel are too high-priced to have an extensive sale, the few received being usually of small size, on account of being the cheapest.

Smoked herring receipts are light, and comprise both "scaled" and "lengthwise" fish.

The total value of canned fish imported in 1897 was only \$151,408. High prices and duties may account for this small amount, which consisted chiefly of sardines from Spain, receipts from that country having been free of duty, except when shipped under a foreign flag, which was seldom. If canned fish could be furnished at a low price, their sale would no doubt largely increase as their good qualities became more fully understood.

Boneless fish are almost unknown. Their introduction would be slow at first, and only small initial shipments would be advised.

CUSTOM-HOUSES AND IMPORT DUTIES.

Under Spanish rule custom-houses were of first and second grades, the former permitting both imports and exports, the latter being limited to exports. Fishery products were considered in three classes, as follows:

Salt cod and stockfish; also fish fresh, salted, smoked, or marinated, including weight of salt and brine.

Fish and shellfish in oil, or preserved in any way in tins, including the weight of immediate receptacles.

Oysters of all kinds, and shellfish, fresh or dried.

Duties were assessed as to weights, regardless of values, being at so much per 100 kilograms of each of the three classes. Entries did not specify species, simply showing imports as consisting of so many packages of so many kilograms of the various classes.

Since the change in government a number of former custom-houses have been abolished. Those now open continue the old method of

classification and assessment, with some changes in rates of duty, and all conduct an export and import business. The central office is at San Juan.

Offices now open are located as follows: San Juan, Mayaguez, Ponce, Humacao, Aguadilla, Arroyo, Arecibo, Guanica.

Custom-houses at the following places have recently been discontinued, and were all of the second class except the last: Fajardo, Naguabo, Cabo Rojo, Salinas, Guayanilla, Isabel Segunda (Vieques Island).

On January 20, 1899, the President, through the War Department, promulgated an order relating to the "Customs tariff and regulations for Porto Rico." This order, which went into effect February 1, made some changes in duties and regulations. Extracts are given as follows:

Trade between ports of the United States and all ports or places in Porto Rico, and trade between ports or places in Porto Rico, shall be carried on in registered vessels of the United States and in no others.

Any merchandise transported in violation of this regulation shall be subject to forfeiture.

For every passenger transported and landed in violation of this regulation the transporting vessel shall be subject to a penalty of \$200.

This regulation shall not be construed to forbid the sailing of other than registered vessels of the United States with cargo and passengers between the United States and ports or places in Porto Rico, or between ports or places in Porto Rico, provided that none are landed, but are destined for some foreign port or place.

This regulation shall not be construed to authorize any lower customs charges on the cargoes of American vessels entering from the United States than are paid on the cargoes of foreign vessels entering from foreign ports.

Every vessel shall, on arrival, be placed under customs control until duly discharged.

Within 24 hours after the arrival of any vessel the master must, under a penalty for failure of \$1 per ton registry measurement, produce to the proper officer a manifest of her cargo, with the marks, numbers, and description of the packages and the names of the respective consignees, which manifest, if the vessel be from a port in the United States, shall be certified by the collector of the port of sailing.

No vessel shall be allowed to clear for another port until all her cargo shall be landed or accounted for.

All goods not duly entered for payment of duty within 10 days after their arrival in port shall be landed and stored, the expense thereof to be charged against the goods.

Prior to the departure of any vessel from any of the ports herein designated the master shall deposit with the proper officer a manifest of the outward cargo of such vessel, specifying the marks and numbers of packages, a description of their contents, with names of shippers and consignees, with a statement of the value of each separate lot; also names of passengers and their destination. A clearance will then be granted to the vessel.

Vessels engaged in trade between the United States and Porto Rico are exempt from tonnage dues.

Duties from and after February 1, 1899, on fishery products are as follows per 100 kilograms:*

Salt cod and stockfish	\$0. 50
Herring, pickled, smoked, salted, or marinated .....	. 50
Mackerel, pickled, smoked, salted, or marinated	1. 00
Salmon, canned, smoked, salted, or marinated	5. 00
Oysters of all kinds, and shellfish, dried or fresh .....	. 50

*1 kilogram = 2.2 pounds avoirdupois.

A tare of 10 per cent is allowed from the gross weight of salt codfish in cases or barrels, and of 2 per cent when in sacks.

MONEY RECEIVABLE FOR CUSTOMS DUES.

All customs dues in the island of Porto Rico shall be paid in United States money, or in foreign gold coin, such as the Spanish alphonosinos (centen) and the French louis, which will be accepted in payment of such customs dues at the following rates:

Alphonosinos (25-peseta piece)	\$4. 82
Louis (20-franc piece).....	3. 86

It is further ordered that on and after February 1, 1899, and until further provided, the following Porto Rican or Spanish silver coins now in circulation in the island of Porto Rico shall be received for customs dues at the following fixed rates in United States money:

The peso (a Spanish dollar)	\$0. 60
The medio peso .....	.30
The peseta.....	.12
The real .....	.06
The medio real.....	.03

It is further ordered and directed that out of the Porto Rican coins so received a convenient supply shall be retained and carried for exchange for United States money at the rate hereinafore enumerated, namely, 60 cents United States money for one Porto Rican silver peso.

IMPORTED FISHERY PRODUCTS CONSIDERED BY PORTS.

PONCE.

This city is located in the central part of the south coast. Its population is about 30,000, of which 3,000 to 4,000 are at the landing or playa, the city proper being 2 miles inland. The harbor is spacious, but much exposed; it has a good depth of water, except near the shore, necessitating the lighterage of cargoes. At the landing are located the custom-house and other offices of the government, and the principal commission and wholesale firms. In the matter of fish imports, Ponce is by far the most important place in Porto Rico. The receipts for 1897 are said to be a fair average of the imports of late years, and amounted in value to \$1,016,447 on dry and pickled fish and \$14,406 on canned fish. The bulk of fish imported has for many years been handled by three commission firms. The value of the dry and pickled fish received in 1897 from different countries was as follows:

British North American Possessions	\$771, 303. 52
United States.....	234, 972. 50
All others.....	10, 171. 17
Total	1, 016, 447. 19

Imported dry fish consists principally of codfish. Hake and haddock are said to stand the climate better than cod, but only a small amount can be disposed of. Poor codfish is preferred to hake and haddock of much better condition and lower price. Of pickled fish, a few herring are used, but seldom any alewives. Split herring bring \$1 a barrel more than round. Smoked herring are only used to a limited extent, "lengthwise" being preferred.

Canned fish are but little used, the small amount imported in 1897 from different countries being valued as follows:

England	\$8, 215
Spain	5, 808
United States	166
France	184
Italy	33
Total	14, 406

Imported fish are usually distributed to the interior in original packages, but when goods are to go over bad roads the packages are opened by the purchaser and the contents packed in bags, which are carried by pack animals.

The marketing of crops has some connection with the fish trade in the securing of return cargoes by vessels arriving with cargoes of fish. Coffee crops are moved from the last of October up to June; sugar crops from the last of January until the end of May. In 1899 the sugar crop began to move the first part of January, somewhat earlier than usual. Return cargoes can usually be had from the first of February up to the end of April.

Freight rates by sail from Ponce to points north of Cape Hatteras are subject to some variation. February 1, 1899, they were as follows: On molasses, \$2 to \$2.12½ a hogshead on a gauge of 110 gallons; sugar in bags, 16 to 17 cents per 100 pounds; sugar in hogsheads, 18 to 20 cents per 100 pounds net weight.

The various expenses connected with handling a cargo of fish are here given in detail:

Shed charges, \$1.75 per 1,000 kilograms. Dredging dues, 50 cents per 1,000 kilos. Lighterage, 25 cents a tierce; small packages in proportion.

Receiving, weighing, cooperage, and watching, 20 cents a tierce; small packages in proportion.

Cartage, storage, and delivery, 20 cents a tierce.

Discount on six months' time, 7½ per cent. Commission and guaranty, 5 per cent.

Custom dues (elsewhere noted).

In past years sales have, as a rule, been on six months' time, account sales with 7½ per cent discount being promptly made as soon as cargoes were disposed of. The state of the market was cabled to shippers, and, if not satisfactory to them, cargoes were stored and held for better prices unless their condition called for immediate sale. Sales are made on a basis of Spanish money, and so long as this continues no bankers' commission is charged on remittances.

Boneless fish here, as elsewhere, remain to be introduced. Small shipments are advised until this product becomes known and a demand is created. Small shipments of canned fish by United States packers are also advised. Dealers believe that canned fish of good quality, if prices were not too high, would meet with a favorable reception and supplant the European importations. In canned salmon, the pale or light-colored lower grades of good quality would not be discriminated against on account of color.

Large shipments of any fish products that the trade is not familiar with would not at present be recommended, but articles of good quality, packed to stand the climate, will find a market when they become known.

State of trade February 1, 1899.—As might be expected, under a change of government and unsettled financial conditions, the amount of business during the past few months has been light as compared with the same seasons of past years. The values mentioned are on a basis of Porto Rican or Spanish money, which often fluctuates. On February 1, 1899, \$100 United States money was equal to 166 pesos, or Spanish silver dollars. Sales continue to be made on a basis of six months' time and discount of $7\frac{1}{2}$ per cent. An improvement has been noticed, and encouragement is felt for the future. Each of the past three months shows increased imports. The following account of the receipts of fish has been furnished by Messrs. Fritz Lundt & Co., of Ponce:

November, 1898: The only arrival since the beginning of this month was the steamer *Arkadia*, which brought to this market 399 tierces of codfish, 16 drums of codfish, 45 tierces of haddock, 4 tierces of pollock.

The demand has been very strong and prices in all markets of the island have improved. Codfish of good quality \$9.50 and haddock \$8 per 100 pounds.

December arrivals with fish: The schooners *Morales*, *Gladys B. Smith*, *Bravo*, and *Arctic*, from Lunenburg, Nova Scotia; schooner *Glad Tidings*, from St. Johns, Newfoundland; steamer *Winifred*, from New York.

The total receipts for the month were 2,369 tierces of codfish, 230 drums of codfish, 218 cases of codfish, 622 half-cases of codfish, 154 tierces of haddock, 276 barrels of herring. With unsold stocks of previous arrivals, the prices declined as follows: Superior codfish, \$7.25 to \$7.50 per 100 pounds.

January, 1899: Arrivals during the month were schooners *Fauna* and *Narka*, brig *Scepter*, and brigantine *W. E. Stowe*, from Lunenburg, Nova Scotia.

These four vessels brought 1,764 tierces of codfish, 305 drums of codfish, 277 cases of codfish, 546 half-cases of codfish, 166 tierces of haddock, 50 drums of haddock, 308 barrels of herring, 300 boxes of smoked herring.

February 1 the stocks on hand were small and the market firm at the following quotations: Codfish, \$8.50 per 100 pounds; hake, \$5 to \$6 per 100 pounds; haddock, \$7 to \$7.50 per 100 pounds; pollock, \$5 to \$6 per 100 pounds; herring, smoked, 25 cents per box; sardines, 70 to 90 cents per dozen $\frac{1}{2}$ -pound cans, in oil or mustard.

These notes on arrivals, receipts, and state of the market for four months show that a healthy condition and favorable prospects for the future have quickly followed a suspended business and state of war with change of government.

SAN JUAN.

San Juan, the capital city of the island, is at present of considerable commercial importance. It is on the north side of the island, where there is much rough weather at certain seasons. It has a fine harbor, at the entrance to which is a light-house, 170 feet above the sea. The channel into the harbor is narrow and must be approached cautiously. During severe northerly winds sailing vessels are at times delayed in entering or leaving the port.

The city is credited with over 30,000 inhabitants. Its imports of fishery products are large, being exceeded by only one port.

The receipts of dry and pickled fish in 1897 were as follows:

From—	Kilograms.	Pounds.	Value.
British North America	3, 880, 410	7, 452, 524	\$439, 458
United States	208, 729	592, 446	34, 935
Other sources	147, 901	326, 066	19, 227
Total	3, 797, 040	8, 371, 035	493, 615

The style of packages and proportion of each species are similar to those of other ports.

Canned fish amounted in value to \$112,091, of which only \$806 worth came from the United States. This formed the bulk of canned-fish imports of the island in 1897, which amounted to \$151,409 in value.

Boneless fish are occasionally received in small amounts by retail grocers. Small introductory shipments only are suggested by the receivers.

The climate and season are important considerations in the shipping of dry fish. In general, the wet months are May, June, July, October, and November; the dry months, December, January, February, March, April, August, and September. There are more rainfalls and the weather is more changeable on the north side of the island. At San Juan, during December and the first part of January, 1898-99, which are reckoned as dry months, the rainfall was exceptional, coming in frequent and short, heavy showers during the day and night.

The sugar crop is marketed from January to August or September. During this time return cargoes can generally be secured, and to a considerable extent through the remaining months of the year. The coffee crop has chiefly been sent to Europe and Cuba between November and March.

Fish arriving by sail are reported as usually being in better condition than when shipped by steamer. Quick-sailing vessels of from 125 to 150 tons are best adapted for this business, and vessels of this character can discharge at the landing.

Consignments are opened and sampled when received, and values that can be ascertained at San Juan or other ports are cabled to the shippers. On receipt of replies, goods are sold or stored, as advised. The markets are fluctuating and subject to considerable variation, according to stocks on hand or known to be en route.

All important receipts of fishery products have been handled by a few commission houses, in connection with sugar, coffee, and other goods.

Often from two-thirds to three-fourths of the invoice value is advanced on shipments, for which one-half per cent bankers' commission is charged. Other charges are:

Wharf allowance, 4 per cent on gross value of invoice; weighing charges, 12½ cents a tierce; cartage, 6½ cents a tierce.

Discount on 6 months' time, 6 per cent; commission, including a guaranty, 5 per cent. Customs duties as elsewhere noted.

Freight rates from San Juan to ports north of Hatteras have during the past years averaged as follows: On molasses, \$2.25 per hogshead, gross gauge; sugar in bags of 250 pounds, 15 cents per 100 pounds.

Vessel property is not in demand at this or other ports. In the past the few sailing vessels of the island were of small size and were only used in the freight and passenger business near home. Recently small-sized steamers have largely taken this business, and at present there are more sailing vessels than are needed.

MAYAGUEZ.

This city, with some 15,000 inhabitants, ranks third in population and also in its fishery imports and its general business. It is near the center of the western end of the island, and resembles Ponce in being located a short distance inland, having its custom-house and its large fish, coffee, sugar, and other interests at the landing. The city is well laid out and handsome and has the only street-car line on the island, between the city and landing. The harbor is much exposed, with good depth of water except near the shore, necessitating the lighterage of cargoes.

The climatic conditions vary somewhat from those of the north side of the island. The usual wet months are May, June, July, August, September, October, and November. During December northerly winds prevail, accompanied by frequent showers. Months that are reported free from any rain are January, February, March, and April. August and September, mentioned among the wet months, are sometimes free from rain a part of the time.

Shipments of dry fish by sailing vessel can be best made during the winter months, while in summer shipments can be made more quickly by steamer. The best months for meeting with a good demand are January, February, March, and April. Shipments by the New York and Porto Rico Steamship Line can be made three times a month. These steamers do a freight and passenger business, making regular calls at Mayaguez, San Juan, and Ponce, and if there is sufficient inducement landings are made at Arecibo, Aguadilla, and Arroyo.

For a long time Mayaguez has been a receiving and distributing port for a large amount of imported fishery products. The receipts of dry and pickled fish in 1897 were as follows:

From—	Kilograms.	Pounds.	Value.
British North American Possessions.....	2, 235, 907	4, 929, 328	\$290, 587. 91
United States	122, 903	270, 955	15, 454. 39
Spain.....	2, 206	4, 863	286. 78
Total.....	2, 361, 016	5, 205, 146	306, 333. 08

The imports of canned fish were comparatively unimportant, being valued at only \$19,732, of which \$19,517 worth came from Spain.

Fish imports have been handled in the usual way by a few commission firms that are also largely interested in sugar and coffee. The following firms have been in business here for several years: Fritz Lundt & Co., Morales Gonzales & Co., Sabater & Co., Bravo & Co., J. Tornabells & Co., and Playa Brothers.

Imported fish are distributed by sales through the interior with occasional transfers of cargoes to other ports in which supplies are needed.

In the past long-time credits have been given, the receivers discounting the amount of the sales at the rate of 1 per cent a month and remitting as soon as sales were closed. With a change in government and a somewhat disturbed state of trade, the present tendency is to make sales as much as possible for cash. This has to some extent reduced sales during the past few months. Merchants complain that the former long-credit system was unsatisfactory, the selling party having largely to trust to the honor of his debtor for payment. If the latter was disposed to evade obligations, a recourse to law was so unsatisfactory that by some firms a total loss would be thought preferable to a resort to legal measures.

In case cargo shipments by sail are made, return cargoes of sugar and molasses can generally be secured from February to and including August. At the time this port was visited, during the latter part of January, 1899, no cargo lots of fish had been received for some time, and freight rates by steamer only could be given. These were: For sugar in hogsheads 22 cents per 100 pounds, and 18 cents per 100 pounds when in bags. These rates are somewhat higher than in the previous year. No shipments of molasses had been made up to February 22. Freight on sugar is made on the net delivery weight.

In past years the coffee crop has all been sent to Europe and Cuba. Since the change in government no coffee has been sent to Cuba, and a considerable amount is being sent to the United States as introductory shipments with expectation of an increased business with the States, both in coffee and fishery products.

The expenses on a cargo of fish would embrace the following charges:

Port dues, \$1.50 per 1,000 kilograms.

Lighterage, receiving and weighing dues, 40 cents per tierce, and smaller packages in proportion.

Commission, including guarantee, 5 per cent; time sales when discounted, 1 per cent a month; customs dues, as elsewhere noted.

The receipts of 1897 were a fair average of those of past years, and consisted of 90 per cent cod, 5 per cent hake and haddock, and 5 per cent pickled and smoked fish. Here, as elsewhere, much loss has resulted from fish turning red and spoiling.

Boneless fish are unknown, but dealers express a desire for experimental lots, well cured, and hope to create a demand for boneless and canned fish, but do not encourage large shipments at first.

Canned fish consist chiefly of sardines from Spain.

Wholesale values of dry cod for the past three years per 100 pounds are here shown by months, as ascertained from the books of dealers at Mayaguez:

Month.	1896.	1897.	1898.
January.....	\$5.50	\$5.50	\$6.00
February.....	.....	6.00	7.00
March.....	5.00	5.50	7.00
April.....	4.50	6.00	7.50
May.....	5.50	7.00	9.25
June.....	6.25	8.00	10.50
July.....	5.50	7.00	8.25
August.....	4.50	5.00	.....
September.....	8.75	5.50	.....
October.....	9.00	6.25	10.50
November.....	7.00	6.00	10.00
December.....	6.00	6.50	8.25
Average.....	6.12½	6.20	8.50

During January, 1899, the market was as follows:

Codfish, \$8 per 100 pounds; hake, \$5 to \$6 per 100 pounds.

Haddock, \$7 per 100 pounds; pollock, \$5 to \$6 per 100 pounds.

Pickled herring, \$4 to \$6 per barrel for round and split; the latter \$1 a barrel more than round.

Sardines in oil or mustard, in ¼-pound boxes, 70 to 90 cents a dozen.

All quotations given are on a basis of Spanish money, which, on account of fluctuations, has resulted in an unsteady market to both receivers and shippers.

ARECIBO.

Of the ports on the north side of Porto Rico this place is second only to San Juan, with which it is connected on the west by 58 miles of railroad. It has a population of 6,000 to 8,000. The harbor is much exposed, with dangerous reefs close to the shore. Cargoes have to be lightered to and from vessels.

In the imports of dry and pickled fish this city ranks fourth in the amount of value, which in 1897 were as follows:

From—	Kilograms.	Pounds.	Value.
British North American Possessions.	1,173,279	2,586,636	\$152,426.27
United States.....	7,673	16,916	997.49
Total.....	1,180,952	2,603,552	153,423.76

Canned fish imports were all from Spain, amounting to \$2,333.

Of the dry fish handled, some 25 per cent additional to the above was received from the San Juan and Ponce importers. The original importers of the several ports draw on or supply each other according to the condition of the trade. The imports for 1897 are said to have been on an average with those of past years.

The principal fishery imports consisted of small-sized dry cod from Nova Scotia. Receipts in recent years have been handled principally by the following firms: G. Ledesma & Co., Rosas & Co., Ledesma, Artau & Co.

AGUADILLA.

This port, with a population of some 5,000 to 6,000, is located at the northwestern end of the island. The harbor is poor, being simply an indentation in the shore line. A good depth of water is found to within a short distance of the beach, on which quite a surf breaks. The place is of considerable importance as a distributing point for this section. The mercantile business is represented by numerous stores, a few of which carry quite large stocks, of which dry and pickled fish form an important portion.

The annual distribution of fish from this port is stated to be 2,500 tierces of dry cod, 500 barrels of pickled herring, and a small amount of smoked and canned fish. The fish go principally to the interior of the island. Very little is imported direct, the supplies in general being bought, as needed from importers at Ponce, San Juan, and Mayaguez. Occasionally small orders are sent to the United States.

The direct imports of fish in 1897 amounted to 19,965 kilograms, or 44,015 pounds; \$2,595 worth of dry fish came from New York and \$2,845 worth of canned fish from Spain. Nearly all dry fish handled are quite small, these being preferred to those of medium size.

The following seven firms handle the bulk of the fish received: J. T. Silva & Co., Yumet & Co., Angel Ma Yumet, Ernesto Rubio, R. Ponce & Co., Jose Diaz, and Schnabel & Co.

Boneless fish are unknown, and canned fish of American pack are seldom used. Dealers express a desire to increase their business with the United States, in the hope of receiving a better class of goods, adapted to their trying climate, the losses from fish turning red and spoiling being considerable.

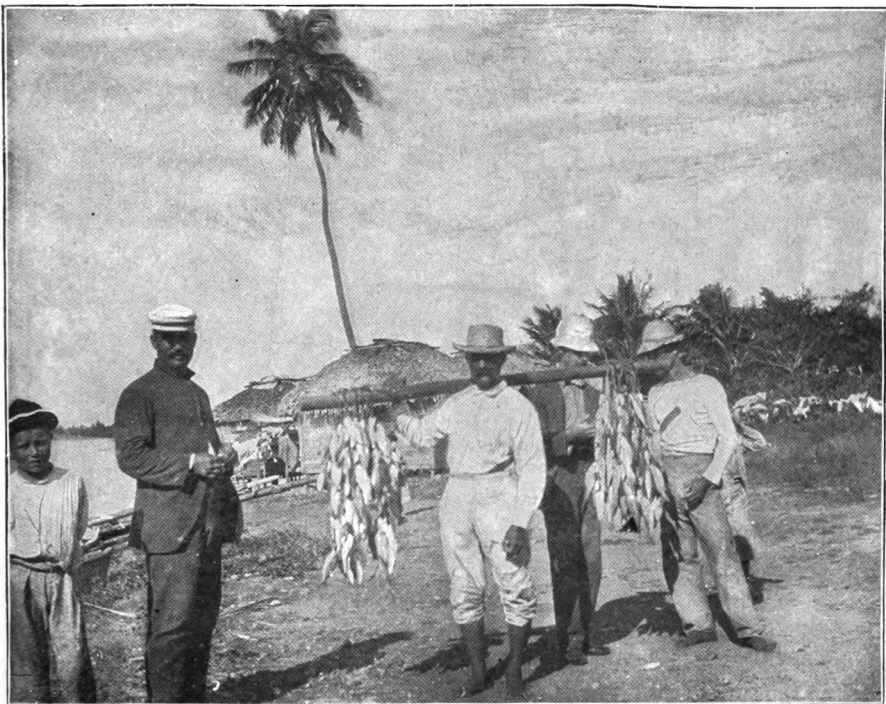
ARROYO.

This port of entry is near the southeastern end of the island. The population is stated at 1,200. Dry and pickled fish are largely used and distributed through the interior, it being claimed that the monthly receipts average 120 tierces of dry fish. Most of the fish products come from the importers at Ponce, the direct imports being small.

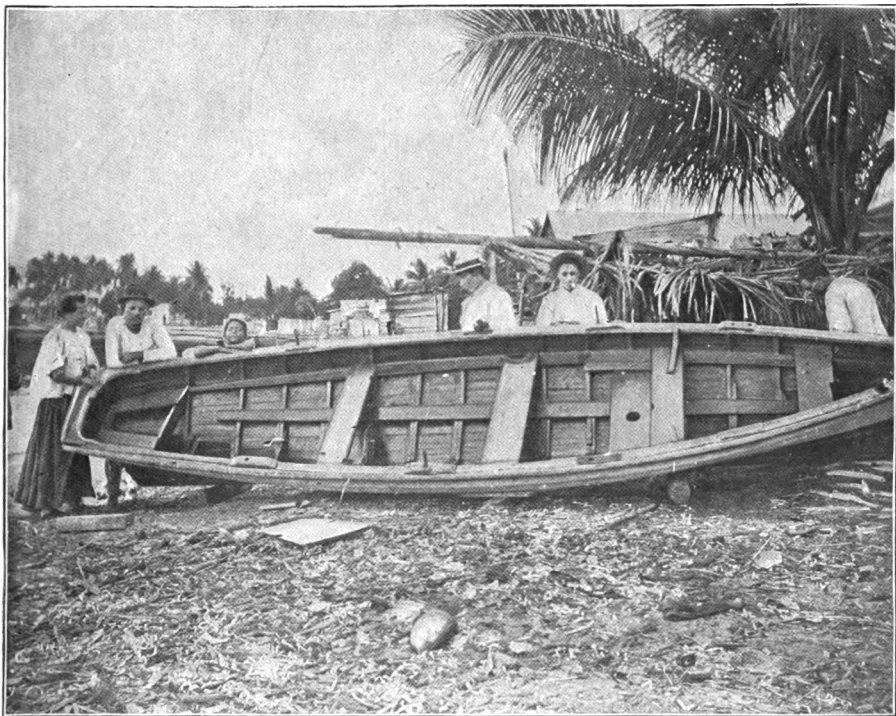
The custom-house records show the direct imports during the past six years as follows:

Year.	Kilograms.	Pounds.	Value.
1893.....	None.	None.	.....
1894.....	1,482	3,287	\$148
1895.....	32,331.	71,273	5,203
1896.....	6,350	13,999	825
1897.....	None.	None.	.....
1898.....	60,116	132,533	7,815

The imports in 1894 were all from the United States, those for the other years were from Nova Scotia. The only direct import in 1898 comprised 200 tierces and 3 boxes of codfish and 100 barrels of herring, from Lunenburg, Nova Scotia.



FISH PEDDLERS AT PORTO REAL.



FISHING BOAT AT MAYAGUEZ.

FRESH-FISH BUSINESS.

Fishing for a livelihood is not carried on to a large extent anywhere in Porto Rico, and scarcely at all for sport. A few fishermen at the several ports make a living by fishing, plantation work, and labor at the docks on vessel cargoes.

The professional and semiprofessional fishermen, as noted by the writer, number nearly 800, and employ about 350 sail and row boats.

The local fisheries yield numerous species of fine edible fishes.

In view of the large amount of dry and pickled fish imported, it is at first surprising that so little attention is given to this business. As a rule, the local demand is indifferently supplied with fresh fish, usually at high prices. Ice is never used, and only the few fish taken of large size are dressed. None are canned, and the only attention given to curing is when an extra large catch is made, a few being then poorly cured for the home use of the fishermen.

In past years the best of the business was monopolized by the few persons interested who had means to buy the exclusive right to fish at the most favorable localities, such as near the outlets of streams and at other desirable places along the coast. Rights were advertised and sold at auction by the authorities. At some ports the local authorities imposed a special tax on all fresh fish landed.

Under Spanish rule all fisheries were in charge of an officer known as the captain of the port. Any person wishing to engage in the business was obliged to procure from him a license and be enrolled in the reserve naval force, licenses being granted only to subjects of Spain. Boats were numbered, and a record kept of licenses, men, apparatus, and, to some extent, of the products. Unfortunately for our knowledge of the former extent of the local fishing industry, the records of the captains of the ports were either destroyed or carried away by those officials at nearly every port when the change in government took place.

With the change of government, the granting of exclusive fishing privileges in the waters of Porto Rico and its adjacent islands was abolished by an official order, a copy of which is here given:

HEADQUARTERS DEPARTMENT OF PORTO RICO,
San Juan, P. R., December 4, 1898.

From and after this date the granting of exclusive fishing privileges in the streams, rivers, bays, inlets, and other waters of Porto Rico and its adjacent islands will be discontinued and the right of fishing in the said waters will be absolutely free; but all persons who enjoy said free privileges will be subject to the common and statute laws which govern fishing in said waters.

By command of Major-General Brooke:

M. V. SHERIDAN,
Brigadier-General, U. S. Volunteers, Chief of Staff.

At the time of taking these notes, February, 1899, a new cabinet had just been seated; its officers reported that no action had been taken on the fisheries; all fishing and the landing of their catch by fishermen were free from tax; no reports had been received from the several

districts, and their officers had no records relating to the fisheries or statistics as to their past condition.

The apparatus consists of a limited number of nets, trawls, and trolling lines, and many wicker-made pots or traps. It is of the most primitive character and is made by the fishermen.

Fishing for sport may possibly receive more attention in the future than in the past, as a large number of mountain streams and lakes are more or less supplied with fresh-water fish, while numerous species are available in salt water.

SAN JUAN.

The fisheries at this city receive little attention. Seventy-five men claim to be fishermen, using 4 keel and 25 flat-bottomed boats of small size and little value, lateen sails being used. These men work on the neighboring plantations more or less, only a few of them being engaged in fishing at any one time. Part of the catch is made by haul seines, in which small fish are taken. Trolling lines are largely used in deep water, far from shore, for fish of large size.

The catch is principally made late in the day or during the night, so that the market can be reached by 4 a. m.; a fair average of a day's catch by three men and one boat being 250 pounds. On landing the catch at the city it is usually bought by a middleman at from 4 to 8 cents a pound, but not paid for until disposed of either at the city market or by peddlers. Fish are peddled strung from poles, and are also carried in large, oblong, shallow baskets.

The retail prices range from 15 cents a pound upward. The largest fish are often cut up in slices to supply small demands; small and medium fish are never dressed, and no ice is used in the business. This manner of disposing of fish by peddlers is in general practice at the several ports.

Many of the species are brightly colored and curiously marked, and make a very attractive appearance when first caught. Many of them have fine edible qualities.

PONCE.

In view of the large imports of dry and pickled fish and its general use by the 30,000 inhabitants of this city, and the number of so-called fishermen of the place, the amount of its fresh-fish business is surprisingly small.

The captain of the port reports that since the late change in government 127 men have been enrolled and granted permission to fish, free of any charge, in the waters of the district. They use 60 small open boats of an average value of \$40. The boats are of schooner, sloop, and cat rig, together with skiffs and dories with sails. None of them are large enough to be entered at the custom-house or to need any papers except that granting the privilege of fishing. The fishermen follow the fishing business very irregularly, and of the 60 boats enrolled the average number engaged in fishing from day to day is not over 5 to 10.

The catch is made chiefly with set pots anchored in and about the harbor; single hooks and lines are used, and a few haul seines are operated along the water front.

No fish are dried, smoked, pickled, or canned, all being disposed of fresh for local use. The aggregate catch is small, and no record is kept of the amount.

There is said to be a scarcity of fish in this vicinity. So long as the fishing is done with set pots, in which bait is seldom used, only light catches of small and medium fish can be expected. A few large fish are taken by men with a single hook and line in deep water.

The city of Ponce has quite a large and good general market, in which the fresh-fish business makes a poor showing, with its one stand, on which a few fish are sold by two or three men. Fish are sold here, as elsewhere, through the streets by peddlers, who carry them suspended from poles borne on their shoulders. Those of small size are tied in bunches and sold at so much a bunch; if large enough to weigh 2 to 6 or 8 pounds, at so much each. None are sold by weight. None are dressed, and ice is not used.

Retail prices average 10 to 15 cents a pound in Spanish money, which was worth 60 cents on a dollar when exchanged for United States money.

The old records now in the custom-house at Ponce show that during the portion of 1898 in which it was under Spanish rule the fishing business of the district was represented by 340 fishermen, with 109 registered boats. This district then included most of the south side and a small portion of the west end of the island, or about one-third of the coast line of Porto Rico.

That the business was carried on with little energy or return to the fishermen may also be judged by the value of the catch, as shown by the old records, for the last six months of Spanish rule. The aggregate value of fish taken in the district of Ponce by the 340 enrolled fishermen for that portion of 1898 when it was held by Spain amounted to 26,815 pesetas; this represents only \$3,218 in United States money. On account of the disturbed condition of all Porto Rican business in 1898 that year can not be considered as a fair average.

MAYAGUEZ.

The fresh-fish business of this port is not extensive, but the market has a larger supply and better variety of fish than are found at the markets of San Juan and Ponce. The catch is made by 25 fishermen, who use 10 to 12 small sloop-rigged keel boats. Most of the boats have a well in the center to keep the fish alive until disposed of. An equal number of dories are used. The former are built at the port at a cost of from \$50 to \$175 each. The dories are of Canadian or United States make, having been purchased of vessels arriving with dry fish.

The custom-house at this port reports one vessel, of 7½ tons, in the fisheries of the district.

Under Spanish rule fishing and fish landed were free of tax or duty at this port, but fishermen and boats were recorded by the captain of the port. This officer fled on the approach of the United States forces and left no records of the previous business. At present fishing is free, but no record of persons or boats employed or any account of the catch has been made up to the time these notes were taken.

The fishing-grounds for haul seines and cast nets are along the beach near the city landing; in the harbor and open sea, to a distance of 8 to 10 miles, hooks and lines and set pots are employed. Two haul seines, each 450 feet long and 12 to 15 feet deep, are hauled by 6 to 8 men. The nets are hand-made, and have a nominal value of 150 pesos, or Spanish dollars, each. Many species of fish are taken in the haul seines.

Wicker pots or traps are anchored in from 18 to 25 fathoms of water. Six boats, with from 12 to 25 pots each, are used near the landing and as far out as 10 miles.

Spiny lobsters are reported as found at all seasons, but mostly during April and May. They weigh from 2 to 10 pounds each.

Cast nets, of which the local name is *tarraya*, are fished along the beach for sardines and other small fish; their value is from 5 to 8 pesos each, and there are 14 in use.

Three trawls are fished by six men in three boats, in from 8 to 100 fathoms of water, some 8 to 10 miles west from the city landing of Mayaguez. From 75 to 200 hooks are used to each trawl, and these are fastened to snoods 3 feet long and 1 fathom apart, with 1 hook on each. Trawls are baited with sardines and anchored. They are often under-run, and are taken up as soon as a sufficient catch has been made or the time has arrived for a return to market. The trawls are valued at from \$3 to \$5 each.

Trolling lines are used to some extent, with single hook baited with sardines. The hooks used are Nos. 1 to 9; the largest, No. 1, retail for 5 cents each; while No. 9 hooks, used on trawls, are worth 50 cents per 100. Twine for trawls is worth 25 cents per pound.

The catch is sold by peddlers, who buy the fish or are hired by the fishermen, and to fish-stands in the large market of the city. The fishermen receive, on an average, the equivalent of 6 cents a pound, the consumer paying about 10. All fish are sold undressed, at so much a bunch for those of small size; large fish are cut into strips and sold by the piece.

Fish are most plentiful in the harbor of Mayaguez from August to December, but are abundant outside of the harbor at all seasons. None of the catch is in any way cured.

ALGARROBO.

Algarrobo is a small fishing settlement in the suburbs of Mayaguez. The fishermen's houses scattered along the beach are surrounded with cocoanut trees and banana plants, the leaves of which form the roofs and sides. This settlement has 14 fishermen, who use 4 dories and 1 sloop. This sloop, the *Francisca*, was built at Algarrobo at a cost of

\$1,200, Spanish money. It measures $7\frac{1}{2}$ tons and is the only vessel used in the fisheries of the island that is of sufficient tonnage to require registry at the custom-house. It was built soon after the close of the late war and had made but three short trips up to the last of January, 1899. It is 30 feet long, $9\frac{1}{2}$ feet beam, with 5 feet depth of hold. In the center is a well 7 feet long, with 31 $1\frac{1}{4}$ -inch holes on each side, to admit the water. Aft of the well is a small compartment for sleeping quarters, and forward is a small galley for cooking. Her fishing gear consists of 40 set pots, by which most of the catch is made, a small trawl with 100 hooks being used occasionally.

The catch of the fishermen of this place is made along the coast, the sloop going as far as off Mono Island, 42 miles distant. One haul seine is used along the beach by 5 men; this is 80 fathoms long, 3 fathoms deep, mesh in the wings 1 and 2 inches, and in the bunt $\frac{3}{4}$ -inch square mesh. Ten pots and a trawl with 80 hooks are used just off the beach in 6 fathoms of water. Sardines are used for bait on the trawl, the pots generally being set without bait.

SABANITA.

This settlement is a few miles north of Algarrobo. From 30 to 40 men carry on more or less fishing, in which they use 2 haul seines, 50 to 75 pots, and 6 trawls. The apparatus is similar to that at Algarrobo. Two boats are used in seining, 5 in fishing pots, and 6 in trawl fishing. The two last-mentioned appliances employ 2 men in a boat.

Other small fishing-places in the vicinity of Mayaguez are Añasco, Arribo, and Corega, each with a few men who fish in the vicinity of their homes. The catch is sold to the neighboring villages and plantations, and the fish market of Mayaguez is better supplied than that of any other place on the island. Fish are peddled along the route to the city, being suspended from poles carried on the shoulders.

No fish are cured and any surplus is thrown away.

BAYAMON.

This place is 5 miles southwest of San Juan, with which it is connected by rail. The population is given as 2,500. It has a number of stores that carry quite large stocks of goods, including dry fish, bought from the importers at San Juan. The Bayamon River flows through the town, with its outlet at the entrance to San Juan Harbor. This stream, although small, is of some value for its fisheries, the most extensive being at Palo Seco at its mouth. At Bayamon the river is only 25 feet wide, with from 3 to 10 feet depth of water, according to the seasons. Near the mouth it widens out to some 75 feet.

Bayamon is supplied with fresh fish taken from the river by 6 resident fishermen, and by others that live along the river banks to the north and south. Other persons fish only for their family use. None of these men give more than a part of their time to fishing. The catch is taken with hoop nets, cast nets, gill nets, and haul seines, all netting being hand-made by the fishermen. A few fish pots are also used.

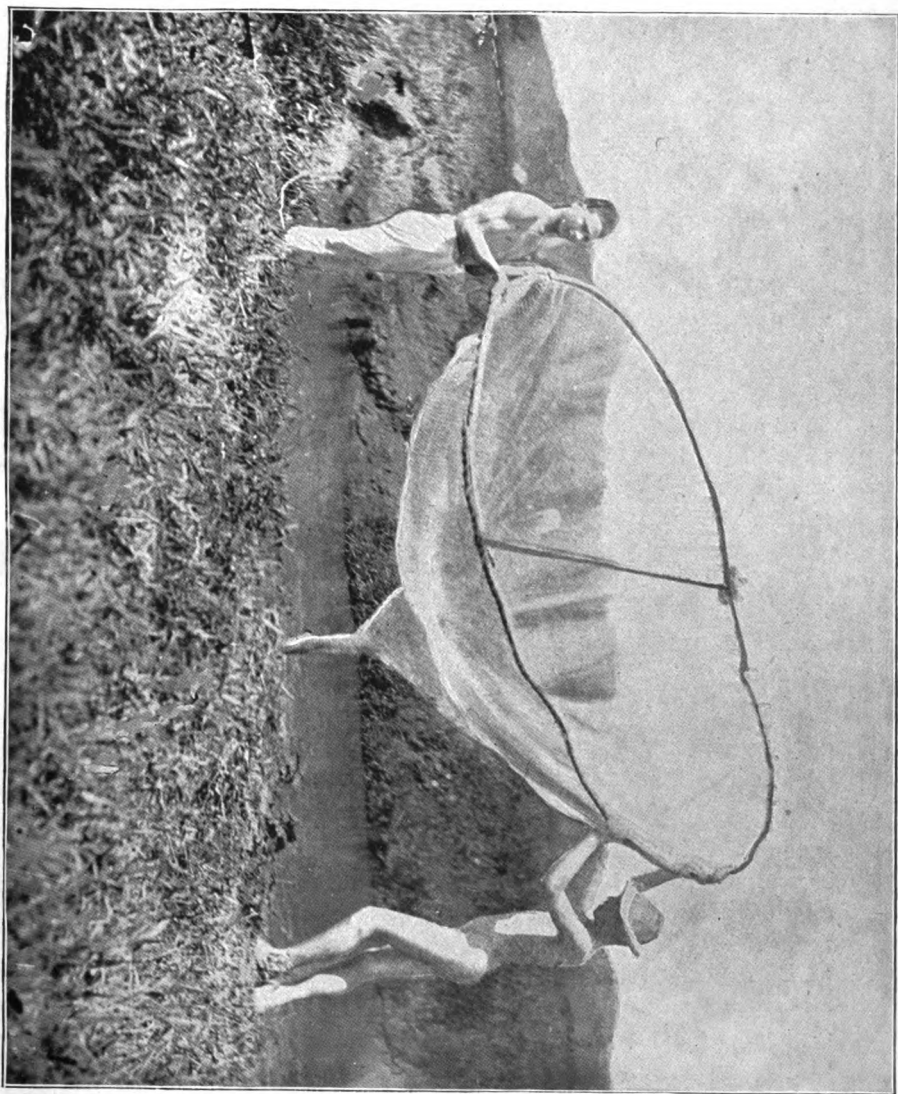
Hoop nets are of funnel shape, the large end being oblong, 6 by 4 feet, and 6 feet in depth, of 1-inch-stretch mesh. The netting is fastened at the large end to a piece of *poma rosa* wood, such as is used for hoops on hogsheds. These nets are used at holes or indentations in the banks, against which they are placed; the ground in the vicinity is pounded or punched with feet and pole and the fish frightened into the net.

Cast nets, with the local name of *nasa de arco*, are also used in this and other small streams and along the sea beaches. They are funnel-shaped, the large end being 6 to 10 feet wide, tapering off through its 6 to 8 feet of depth to a point to which a line is attached; the netting is 1-inch-stretch mesh, with the bottom leaded. In its use the net is gathered up on the arm of the fisherman, the narrow or pointed end being held in one hand, while the net is partially opened by holding the lead line between the teeth and grasping it with the other hand at a point conveniently distant from that where it is so held, as with a dexterous whirl he casts the net from him over the water. If properly thrown it spreads wide open before striking the water, and in this position sinks to the bottom, after which it is immediately drawn in and the catch removed. Cast nets have a value of \$5, and yield a variety of small fishes and shrimp.

Palo Seco is a small fishing village at the mouth of the Bayamon River. It has a population of about 200, including 60 fishermen, who use 25 small sail and row boats with fishing appliances similar to those before noted. The catch by these men is chiefly made in the evening and at night and forms a portion of the fresh-fish supply of the city of San Juan. It is taken in and near the mouth of the river and in the bay, a few boats using trolling lines outside of the harbor. Fish pots are set in the river and bay and outside of the harbor. When used in the river they are attached to the shore by a line; when used outside they are weighted with stones and anchored to a buoy, although when well water-soaked they need no weights.

This is one of the few localities in which pots are baited; the fishermen report using in them burned bones, hoofs of cattle, and sour or decayed oranges. These pots are similar to the New England lobster pot, and differ in general construction from those in common use elsewhere around the island. They are 4 to 10 feet long by $1\frac{1}{2}$ to 5 feet in diameter, with funnel entrance at one end only and a trapdoor on the top by which the catch is removed. They are made of bamboo splints. Pots are left anchored over night and the catch is removed in the morning.

Haul seines are used near the mouth of the Bayamon River and along the neighboring beach of San Juan harbor. They are of various lengths, those in general use being 300 feet long and 15 to 20 feet deep, with mesh of 2-inch bar, except in the bunt, which is of heavier twine and $\frac{3}{4}$ -inch mesh. They have a nominal value of \$50, of which \$25 is allowed for cost of twine and an equal amount for leads, corks, and labor, the nets being made by the fishermen.



NATIVES WITH HOOP NET, BAYAMON RIVER.

Gill nets are about 600 feet in length by 12 feet in depth, with mesh of 2-inch bar. They are drifted with the tide in the bay. Often the water near the nets is pounded with poles to drive fish into the meshes. Hemp twine from Spain is used. For haul seines No. 8 twine is used in the wings and No. 5 in the bunt. The fishermen pay 75 cents a pound for this twine, buying a few balls at a time.

The boats are very expensive as compared with the cost of similar ones in the United States. All are open, with no deck or cabin, and use lateen sails. The largest, with keel bottom, cost from \$200 to \$300 each; the smaller keel boats cost \$100 to \$150, and common skiffs \$40 to \$50 each. In fishing, 2 to 5 men go in each boat.

Trolling hooks are used outside of the harbor of San Juan as far as 10 or 12 miles, but fishing with them is not followed with any regularity. In troll fishing large fish are caught, the largest being the *arbujo*, which is taken in deep water at all seasons and is said to weigh as much as 50 or 100 pounds.

Fish weirs or traps are used in the Bayamon River by building a hedge of canes across the stream with a gateway for passing boats. The hedge is made with indentations or pockets at various places on each side. Fish in their movements up or down stream enter these pockets and are taken out with dip nets. In some streams hedges have no pockets, but instead, funnel-shaped cones of bamboo or cane splints are inserted at various places. Fish seeking a passage through the hedge enter these cones and become wedged, few escaping.

Fishing is carried on at all seasons, fish being most plentiful during July. Dynamite has sometimes been illegally used to kill fish in some streams and in the bay.

The fishermen at Palo Seco give more attention to fishing than at most places. Prices received by them, 4 to 6 cents a pound, have in the past left them but a small margin of profit after the payment of expenses and taxes; at the same time the consumer had to pay 15 cents and upward a pound for undressed fish.

ARECIBO.

From 40 to 50 men at this port follow fishing for a living at all seasons of the year when the weather permits.

The fishing-grounds are along the beach at the city front, and 3 to 4 miles out, and in the nearby waters of the Rio Grande. Several species of fine edible fish are found at all seasons of the year.

The boats used are of small size, with keel or flat bottom. They are built at Arecibo, and, as in other places, are expensive, a small, open keel boat bringing \$100 to \$150, and the common flat-bottom skiffs \$30 to \$50, in Spanish money. Twelve to 15 boats with lateen sails are in use.

A large portion of the catch is made by 2 haul seines, each 360 feet long by 12 feet deep, 12 to 14 men being required to haul one through the swells and surf of the beach. The seines are made by the fishermen.

The bow rig, with from 3 to 6 hooks attached to each of the short snoods suspended from its end, is used from 3 to 4 miles from shore, in from 60 to 150 fathoms of water. They are employed on 6 or 8 of the largest boats, carrying from 3 to 4 men each.

About 40 cast nets are used along the beach and in the river, taking sardines and other small fish.

The Rio Grande, having its outlet at Arecibo, is one of the many small streams which has its source in the adjacent mountains. For the first 16 miles from its mouth it is more or less fished throughout the year by cast nets, and occasionally by haul seines near the mouth. Under Spanish rule no weirs or traps of any kind were permitted in the river, and haul seines only by special permission. No fish are cured, all being sold fresh by the fishermen, who carry them suspended on poles, selling small fish by the bunch and those of large size by the piece. A market is found in the city of Arecibo and the surrounding plantations. The prices received are 6 to 8 cents a pound, the fish being sold direct by the fishermen to the consumer.

AGUADILLA.

Fresh fish forms a large portion of the food of the 5,000 inhabitants of this city and vicinity. The catch is made in the waters of the bay, a small amount coming from the Culebrinas River, which is fished from its mouth for 2 miles upstream. The river catch consists chiefly of small fish taken with cast nets.

Fishing in the bay is largely by 10 haul seines used along the beach. Each is from 150 to 300 feet in length by 15 to 20 feet in depth, with mesh 3 and $1\frac{1}{4}$ inches in the wings, and $\frac{3}{4}$ inch in the bunt. They are hauled by 6 or 8 men to a net.

There are 10 trawl lines used in from 50 to 100 feet of water, having from 100 to 200 hooks, each attached to short snoods. For deep-water fishing, from 3 to 4 miles offshore, the bow rig is employed. This is simply a bow of strong wire, at each end of which is attached a short line having from 1 to 4 hooks. Fifty of these are used in water from 300 to 500 feet deep. The value of a bow rig of hooks and line is 4 pesos, or dollars. The principal part of the catch by the bow rig is the very handsome spotted redfish (*cabrilla*), of fine edible quality, weighing from 5 to 10 pounds each.

Sixty cast nets having $\frac{1}{2}$ -inch, square, mesh, and valued at \$4 each, are in use. Forty traps or pots are used in the bay, and at times a small number are fished in the river. They are made of woven bamboo splints fastened to light frames, each 3 feet in diameter and somewhat smaller than those used at other places. They are valued at \$4 each, and in bay fishing are anchored in 40 feet of water.

Fishing is chiefly in the early morning, with considerable toward the close of the day, and very little between morning and late afternoon.

The boats are all flat-bottomed dories, similar to those in general use in New England; they are 12 to 18 feet long, 3 feet beam, with sides of imported pine and frame of native wood. They are made at the port and valued at \$25 each.

It is claimed that the waters in this vicinity have a better and more plentiful supply of fish than is found elsewhere about the island. Fish are reported as being always abundant off the northwest coast of Porto Rico. On account of lack of transportation facilities fishing receives little attention and the inhabitants of the interior depend largely on imported dry fish. A few miles of railroad connect Aguadilla with the city of Mayaguez, yet no fish are shipped away or cured. There being no fish market or dealers, the fisherman ties his catch into bunches or sliced-up pieces, suspends them on a pole, and peddles them among the adjacent plantations. The average price for fish is about 6 cents a pound.

Aguadilla is the only port in which the old Spanish system of keeping a record of the fisheries is yet in vogue. For many years records were kept by the former captain of the port. He still takes an interest in the business and continues to record the number of fishermen, their apparatus, and approximate catch. He reports at present 40 boats and 100 fishermen at this port and places their aggregate catch during the past year at 80,000 pounds. Although the time given embraces the period of the late war, the amount reported is so small that it probably does not represent the full catch.

PORTO REAL.

This is a small village of 250 inhabitants, located near the southwestern end of Porto Rico. It is the landing-place for Cabo Rojo, which formerly had a second-grade custom-house, permitting exports but no imports. A small amount of fishing is carried on here by 25 men.

The boats are 12 to 15 feet long, home-made, and are roughly but strongly built; 5 of them are keel boats with a small well in the center, and are valued at \$40 each. Seven skiffs, worth \$5 each, are used near shore. Boats are of sloop and schooner rig, and carry 2 men each.

The fishing apparatus consists of 2 haul-seines, used along the beach, 150 pots used from 1 to 2 miles from shore, and single hooks and lines used from 5 to 10 miles from the home port.

The catch is kept alive either in the well of the boat or in cars anchored off the landing, until disposed of in the vicinity or taken to Mayaguez. In this vicinity fish are reported plentiful and many are beautifully colored and have fine food qualities.

The lagoons or arms of the bay of Porto Real are bordered with mangrove trees that extend back through the adjacent swamps. For several miles on both sides of these lagoons oysters of small size are found in dense clusters attached to the roots and lower branches of nearly all the trees along the banks. These oysters are free from any coppery flavor, but are of poor quality and of small value at present; they are not found on the soft muddy bottoms of the lagoons. Commercially there is no native oyster business on the island, and but few imported canned oysters are sold. Occasionally a few of the former are gathered and sent in the shell to the largest cities.

At the bay of Boqueron, a few miles south of Porto Real, fishing is engaged in by 4 men with 2 small boats of sloop and schooner rig. Hooks and lines and pots are used in taking the limited catch, which is disposed of in the neighborhood.

ARROYO.

From 30 to 60 men engage more or less in fishing at this place, with haul seines, cast nets, and pots, the larger part of the catch being taken in pots, and chiefly from May to August; during the remainder of the year most of the fishermen work on plantations. They make their own boats, which are roughly built, but very strong, without decks or wells, and 15 feet long by 6 to 7 feet beam. Thirty-five boats are in use, with an average value of \$50; 2 men go in each.

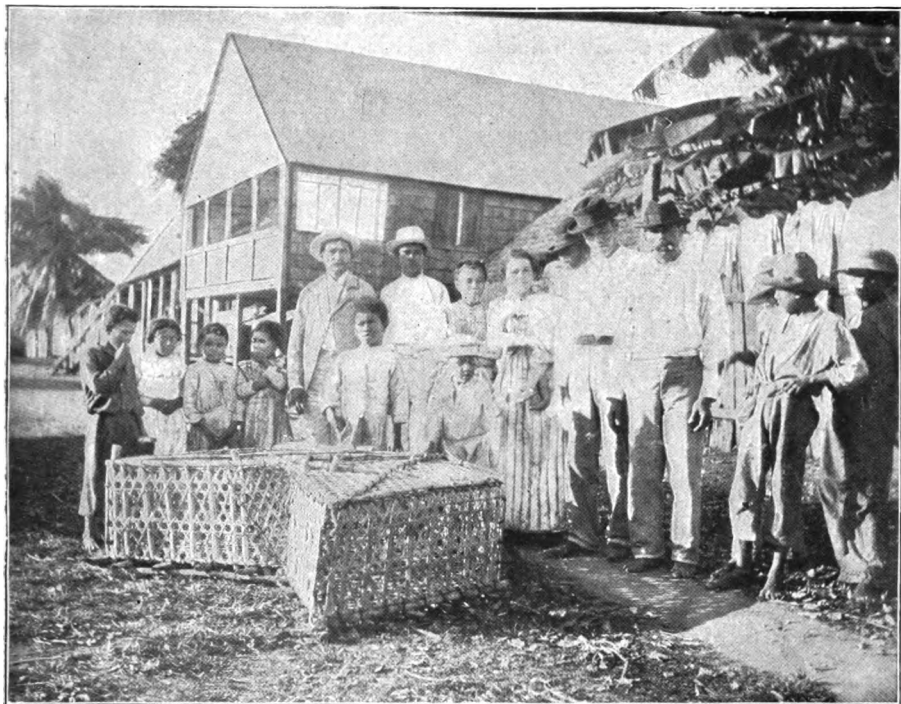
Turtles are found at all seasons, being most plentiful from September to the last of December, during which time they deposit their eggs in the sand of the beach. The catch is small, and made only when turtles are found on shore. The value of the fishery lies chiefly in the shell of the hawksbill, for which the fishermen receive \$3 a pound, Spanish money. The largest shells weigh from 5 to 6 pounds; the meat is sold to the natives at 4 to 6 cents a pound.

In the latter part of November, 1898, this section was fished for turtles by the crews of two small cat-rigged vessels from the English island of Tortugas, who used large-mesh nets to which wooden decoy turtles were attached, the nets being set near the coral reefs off the harbor of Arroyo. The vessels remained two weeks and it was reported that a fair catch was made.

Between April and September trolling lines are used, chiefly for king-fish, which are said to weigh from 20 to 30 pounds on the average, some being much heavier. Among the other fish taken in trolling are the capitan and barracuda. Trolling is done between sunrise and 8 or 9 in the morning.

A few haul-seines are employed. The largest are 200 feet long, and 10 to 15 feet deep, with a bag net in the center; the mesh is $1\frac{1}{2}$ inches (square) in the wings and 1 inch in the bag. There are 6 small seines, each 120 feet long, with $\frac{1}{2}$ inch (square) mesh, and are without any bag attachment. Small seines are chiefly for taking bait for hook-and-line fishing. Six cast nets are employed along the shore. Six trawls are operated, having from 50 to 200 hooks each, with snoods 2 feet long and placed 4 feet apart. The buoy to the trawl is said to have a bell attached by which the fishermen judge as to the best time to take it up. Trawls are generally fished during the night. Sharks are numerous and often destroy an entire trawl outfit.

Fish pots are used in from 20 to 25 fathoms of water. They are lifted once a day in removing the fish. The pots are of larger size than at most places, being 6 feet long, 3 feet wide, and 18 inches deep. The frame is of mangrove wood, and the body of split wild cane, woven in 2-inch, six-sided meshes. The body and frame are fastened together



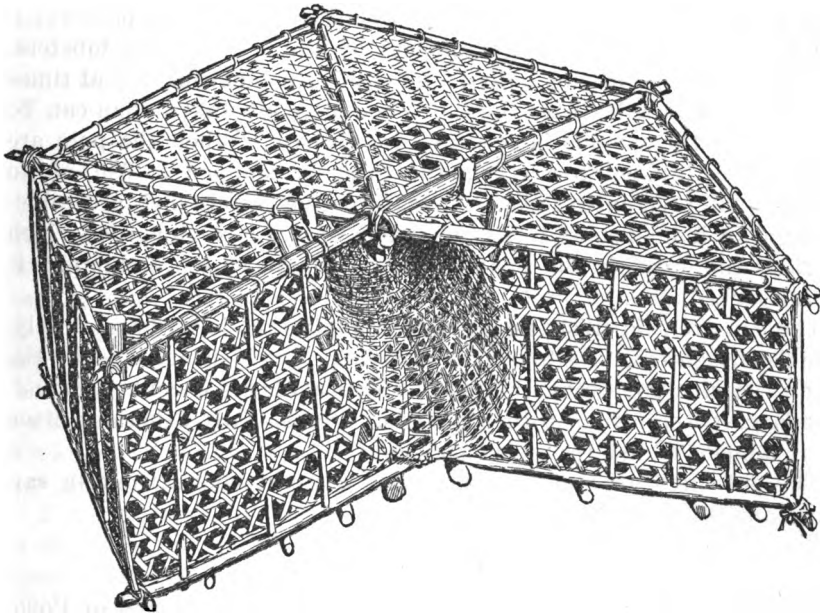
FISHING POT AND FISHERMEN, WITH THEIR FAMILIES, ARROYO.



FISHERMEN'S HOMES AND FISH NETS, AT PALO SECO, NEAR MOUTH OF BAYAMON RIVER.

with calabash roots that are very strong and, after being water-soaked, pliable. A small door in the back of the pot permits the removal of the catch. No bait is used in the pots, as its presence attracts the numerous sharks which often destroy pots containing fish. These pots have a wide mouth, the entrance narrowing as it passes with a curve into the pot. Fish entrapped do not often escape, and serve as decoys to other fish. From 6 to 12 pots are used by each boat.

At Arroyo, as elsewhere, when under Spanish rule, exclusive privileges to fish in the most desirable localities were sold, and often included privileges for fishing in the rivers and their mouths. The records of the fisheries at this place were not saved by the former captain of the port. At present fishing is free and no record is made of men or of the catch.



Bamboo fish pot or trap in general use in Porto Rico.

The Patillas River, a small stream having its outlet a few miles east of Arroyo, is reported as being well supplied with fish, which are taken by weirs, haul seines, and cast nets.

The fresh and salt water fish taken in the vicinity of Arroyo are sold fresh from a few rough tables near the water front, or peddled through the country by men on foot and on horseback. As a rule prices are high to the consumers, ranging from 7 to 12 cents a pound for undressed fish. Imported dry fish are often cheaper than fresh fish and much more in demand.

PUNTA SANTIAGO.

This place is of some importance as a receiving and distributing point for the rich and thickly settled district of Humacao. The port has about 1,000 inhabitants, a custom-house, and a few stores. The

town of Humacao is 5 miles inland. Large quantities of dry and fresh fish are consumed in the district, the former being received from Ponce and San Juan. Customs records show no direct imports of fish during the past five years.

The present collector of customs (formerly captain of the port) reports 25 fishermen, with the following apparatus:

6 sailboats, valued at \$150	\$900
3 rowboats, valued at \$45	135
132 fish pots, valued at \$3	396
12 cast nets, valued at \$6	72
Total	1,503

During April, May, and June trolling lines and hooks are much used, but at other seasons trolling is limited to such times as going to and from the set pots. The principal part of the catch is from pots which are occasionally baited with fragments of crayfish or spiny lobsters, but as a rule pots are not baited. Crayfish are plentiful and at times the pots will be filled with them. When more are taken than can be disposed of the surplus is returned to the sea. When the pots are baited with broken-up crayfish, the catch is confined to fish, as no crayfish will then enter them. A small number of crayfish are taken at night by hand, among rocks in shallow water; a torch is used which attracts the crayfish and enables the fisherman to see and impale it with a forked stick.

The fish are sold fresh, undressed, supplying the local demand only. The fishermen receive 4 to 6 cents a pound. Crayfish are sold by the piece, the size governing the price, which averages 3 cents a pound. The largest weigh from 6 to 8 pounds. Occasionally fishermen dry a small amount of fish for their own use.

The only nets used at Santiago are a few cast nets for taking sardines and other small fish.

HUCARES.

This place is located near the center of the western end of Porto Rico, and is 4 miles north of Punta Santiago. Near the shore the water is shallow, necessitating the lighterage of cargoes. The port of Hucares is said to have a population of from 800 to 1,000, most of the men working on the plantations, while a few are fishermen. The village has a few fairly good houses, but the majority of them consist of a light frame of poles thatched with the leaves of the sugar cane and banana.

A number of small stores dispose of considerable dry fish, which comes from the importers of San Juan.

Fish are reported plentiful in the harbor, where they are taken by 10 fishermen, who use 4 boats, 60 pots, and trolling lines and hooks. Eight men with 1 boat occasionally use a haul seine 300 feet long, with a bag in the center. The fish catch is chiefly by pots.

FAJARDO, CEIBA, AND LUQUILLO.

Fajardo, located at the northeastern end of the island, with Ceiba, on the south 6 miles, and Luquillo, about the same distance on the northwest, are represented in the fisheries as follows:

Locality.	Apparatus.	Value.	Fisher- men.
Fajardo.....	Boats, 24.....	\$1,800	80
	Pots, 100.....	400	
	Cast nets, 12.....	60	
	Haul seines, 4.....	1,000	
	Turtle nets, 50.....	750	
		4,010	80
Ceiba.....	Boats, 6.....	450	15
	Pots, 15.....	60	
	Cast nets, 4.....	20	
		530	15
Luquillo.....	Boats, 2.....	150	5
	Pots, 15.....	60	
	Cast nets, 2.....	10	
		220	5

Fajardo, with a population of 4,000, is the most important place in this section, and is located 2 miles inland from the *playa* or landing. At the latter there are 600 inhabitants, a few small stores, and the custom-house, which, prior to the change of government, was a second-grade office at which no imports were permitted. A large amount of dry and fresh fish is consumed, the former coming from San Juan.

Fishing is chiefly by set pots; occasionally a few haul seines and cast nets are used in the general fishery, and gill nets for turtles. Trolling hooks and lines are used to a limited extent. Fish are plentiful and are all sold fresh, undressed, at about 4 cents a pound.

The boats are small, roughly built, with sloop or cat rig, none having wells. Haul seines are 300 feet long, with a bag in the center, and are hand-made. The mesh in the wings is $1\frac{1}{2}$ and 2 inch, in the bag $\frac{1}{2}$ inch. The twine is imported from Spain and is worth 36 cents a pound.

At certain seasons a light catch of fish is made in the Fajardo River, a few cast nets being used near its mouth. Within 6 miles of the mouth of the river 3 weirs have been fished in the past. The best fishing-grounds, near the mouth of the river, were formerly worked only by holders of special grants from the government.

Canned fish are not much used. The cost and retail prices of the few found on sale were as follows:

Description.	Cost.	Retail price per can.
	<i>Per dozen.</i>	<i>Cents.</i>
Sardines, $\frac{1}{2}$ oil.....	\$1.00	10
Salmon, 1-pound tall can.....	2.25	25
Oysters, 5-ounce can.....	2.25	25
Merluza (codfish), 1-pound flat can.....	2.50	30

A few turtles are caught about the adjacent islands, chiefly with gill nets 15 feet long, which have wooden decoys attached, representing turtles. During 1898, 400 pounds of hawksbill-turtle shells were taken and sent to New York, where the best brought \$5 a pound in gold.

Small oysters are found attached to the roots and lower branches of the mangrove trees that border the islands, but none are gathered.

VIEQUES ISLAND.

Vieques Island is the largest in size and population of the several outlying islands belonging to Porto Rico. It is 17 miles long by 5 miles in greatest width, its western end being 11 miles from Porto Rico. The population in 1897 was about 5,200.

A small amount of fishing is carried on at several places. The following table gives all the statistics obtainable:

Location.	Men.	Boats.	Pots.
Porto Isabel II	12	6	50
Porto Real	4	2	12
Porto Negro	2	1	8
Porto Arenas	6	3	18
Porto Mosquito	6	3	20
Total	30	15	108

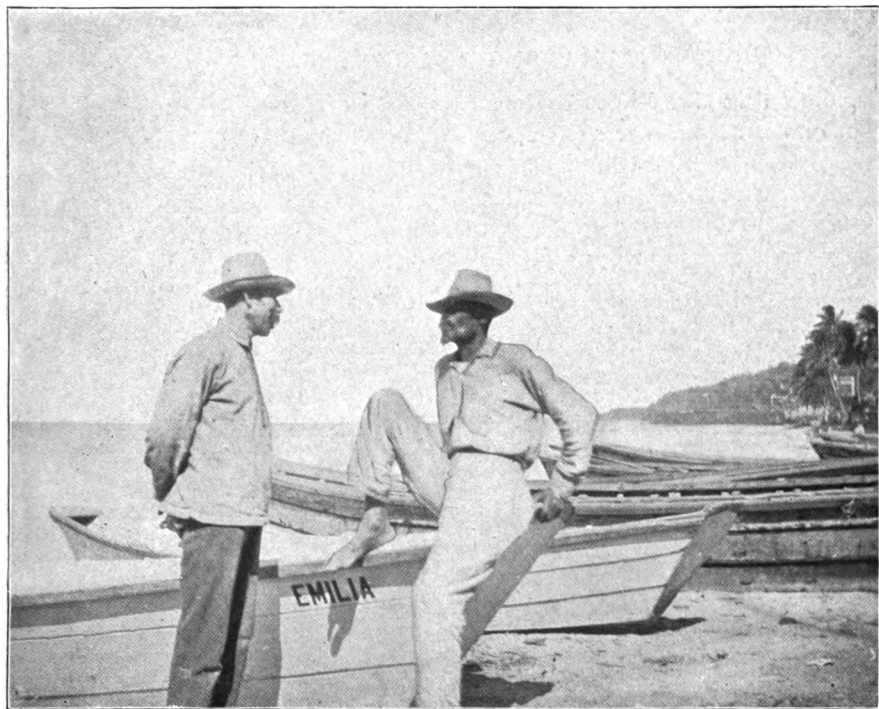
Trolling lines and a few nets are used, but most of the fishing is by set pots. The pots are anchored by ropes made of vines. The catch is peddled through the several small villages and at the plantations, selling at 5 cents a pound. A few turtles are taken at the southern end of the island. Small vessels from the neighboring British and Danish islands at times visit this section on their trips for turtles.

Isabel Segunda, on the north side of the island, has several good-sized stores, and is the leading port. Its harbor is much exposed, and dangerous with northerly winds. At this port the fishing appliances are 50 pots, 25 cast nets, and 1 haul seine. The latter is 150 feet long and 10 feet deep.

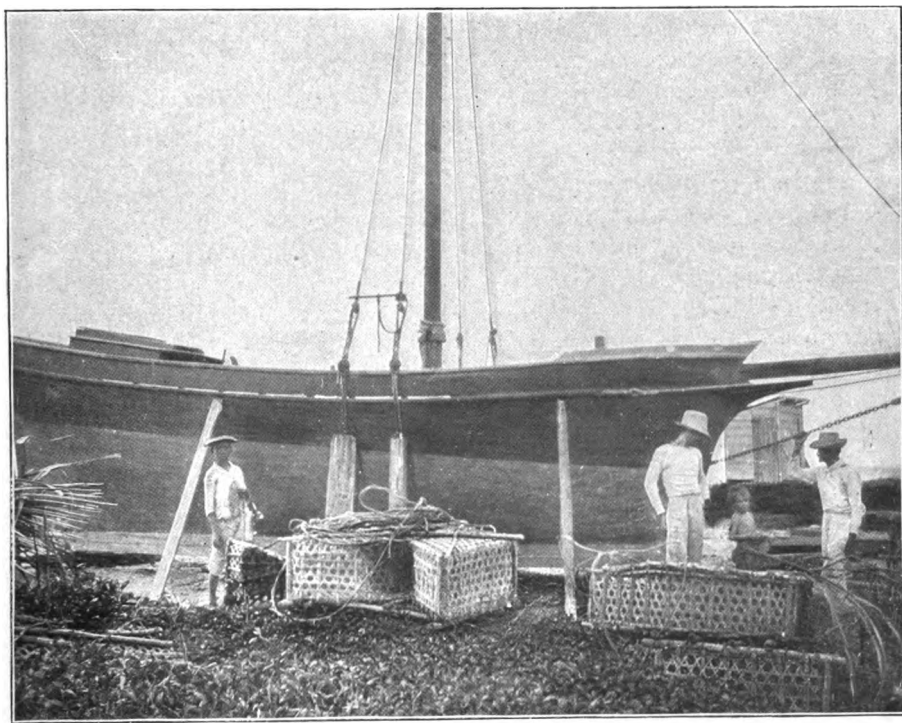
CULEBRA ISLAND.

Culebra Island is 10 miles north of Vieques Island, and 14 miles from Porto Rico. It is rough and mountainous, and is but little cultivated by its 730 inhabitants. It is of very irregular shape, with an extreme length of 8 miles and a width of 3 miles. The harbor is one of the very few good ones found in this section. It is nearly surrounded by high hills and has a good depth of water. The narrow entrance is bordered with coral reefs. On the harbor is a small settlement of about 100 inhabitants, with a few small stores.

Fish are reported plentiful around the island, but scarce inside the harbor. Very little attention is given to fishing, only 2 or 3 men being engaged. They use 12 fish pots, 24 nets for turtles, and occasionally trolling hooks and lines. Imported dry cod is much more used than fresh fish.



FISHERMEN AT AGUADILLA.



FISHING SCHOONER FRANCISCA AND WICKER FISHING POTS.

Nets for taking turtles are 27 feet long, 8 to 12 feet deep, of 12-inch square mesh; they are home-made, the twine being worth 50 cents a pound at St. Thomas. A few turtles are taken on the beaches, but most of the catch is by nets, which, with their wooden decoy turtles, are anchored near the coral reefs; the nets are visited once or twice a day during the turtle-fishing season, which is said to be in May, June, July, and August. The hawksbill, green sea, and loggerhead turtles are reported more plentiful in this vicinity than elsewhere in the region. The local catch is small, only 75 hawksbill turtles being caught in 1898.

The shell of the hawksbill is said to average from 3 to 5 pounds, and brings from 75 cents to \$4 a pound in gold at St. Thomas. The loggerhead turtle is used only for its oil. Turtle meat of the other varieties is sold for food at 6 cents a pound.

Under Spanish rule fishing privileges around the island were free to the natives only. The natives claim that their fisheries have not been protected, the islands being visited by numerous small fishing craft owned at St. Thomas and other Danish and British islands. Since the change in government these vessels when in this vicinity fly the American flag, and their crews claim to be citizens of the United States, although the natives say most of these boats are owned at the British island of Tortola.

The fish are salted and poorly cured on board by drying in the sun, and are disposed of chiefly at St. Thomas and other ports in the West Indies. The catch is obtained by pots and trolling lines.

The turtle catch is said to be considerable.

The harbor of Culebra Island has numerous small inlets that are bordered with mangrove trees, on the roots and lower branches of which small-sized oysters are abundant, but are too small to be of much value for food.

STATISTICAL TABLES.

Imported fishery products being next to the largest in amount and value of the imports of Porto Rico, the statistical tables presented on pages 30-33 are of much interest and value. The records are from the original entries at the several custom-houses of the island. There the various species are not shown, but by reference to pages 4, 5, and 12, an analysis of the imports will be found, giving species and full particulars of imports.

In all cases where values are given it is on a basis of Spanish paper money, which has had a fluctuating value, the average during the time shown in the tables being some 60 cents on a dollar for gold.

30 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, from countries received, the quantity, value, and duty paid on

Received from—	Dry, pickled, and smoked fish.				Canned fish.		
	Kilos.	Lbs.	Value.	Duty.	Kilos.	Lbs.	
1893.							
British North American provinces.	9,315,929	20,538,095	\$1,211,070.77	\$83,843.26			1
United States.....	356,190	785,264	46,304.70	1,076.59	15,323	33,781	2
Norway and Sweden.....	10,922	24,079	1,419.86	95.59			3
France.....					1,146	2,526	4
Spain.....	135,731	299,235	17,645.03		67,538	148,896	5
England.....	1,246	2,747	161.98	11.21	2,953	6,510	6
Germany.....	22,412	49,410	2,913.56	201.71	614	1,354	7
Total	9,842,430	21,698,830	1,279,515.90	85,828.36	87,574	193,067	8
1894.							
British North American provinces.	9,890,226	21,804,202	1,285,729.38	89,012.04			9
United States.....	1,522,207	3,355,890	197,888.91		38,489	84,854	10
Norway and Sweden.....	10,790	23,788	1,402.70	47.11			11
France.....	581	1,281	75.53	5.23	6,261	13,803	12
Spain.....	56,247	124,003	7,312.11		250,713	552,727	13
Italy.....	144	317	18.72	1.80			14
England.....	350	772	45.50	3.15	10,273	22,648	15
Germany.....	23,349	51,476	3,035.37	234.14	1,346	2,968	16
Holland.....					686	1,512	17
Total	11,503,894	25,361,729	1,495,506.23	89,302.97	307,768	678,512	18
1895.							
British North American provinces.	12,379,085	27,291,194	1,609,281.05	111,411.77			19
United States.....	769,401	1,696,238	100,022.13	6,900.50	879	1,938	20
Norway and Sweden.....	32,639	71,957	4,244.07	293.76			21
France.....					2,421	5,337	22
Spain.....	27,903	61,516	3,627.39		532,303	1,173,526	23
Italy.....					78	172	24
England.....	980	2,161	127.40	8.82	808	1,781	25
Germany.....	2,309	5,090	300.17	24.30	940	2,072	26
Denmark.....	7,645	16,854	993.85	68.81			27
Total	13,219,962	29,145,010	1,718,596.06	118,707.96	537,429	1,184,826	28
1896.							
British North American provinces.	11,974,462	26,399,153	1,556,680.06	107,770.16			29
French North American provinces.	70,270	154,919	9,135.10	632.43			30
United States.....	728,714	1,606,538	94,732.82	6,558.43	6,793	14,976	31
Norway and Sweden.....	45,974	101,355	5,976.62	413.77			32
France.....	5,840	12,875	759.20	52.56	4,231	9,328	33
Spain.....	86,369	190,411	11,227.97		248,137	547,048	34
Italy.....					36	79	35
England.....	754	1,662	98.02	6.79	3,630	8,003	36
Germany.....	16,237	35,797	2,110.81	146.13	360	794	37
Denmark.....	11	24	12.35	.66			38
Venezuela.....	20,500	45,195	2,665.00	184.50			39
Cuba.....							40
Total	12,949,131	28,547,929	1,683,397.95	115,765.63	263,187	580,228	41
1897.							
British North American provinces.	12,722,700	28,048,735	1,653,871.00	115,000.84			42
United States.....	2,226,750	4,909,141	288,958.60	20,080.67	1,964	4,330	43
Norway.....	44,443	97,958	5,776.29	399.92			44
Sweden.....	18,799	41,445	2,443.87	169.40			45
Scotland.....	391	862	50.83	3.53			46
France.....	2,542	5,604	330.46	22.88	4,567	10,068	47
Spain.....	75,523	166,499	9,817.99	2.21	296,194	652,996	48
Italy.....	920	2,028	119.60	8.24		143	49
England.....	70,520	155,470	9,867.60	634.68	17,126	37,756	50
Germany.....	9,834	21,680	1,278.42	88.54	382	842	51
Total	15,172,412	33,449,422	1,972,514.66	136,410.91	320,376	706,308	52

FISHERIES OF PORTO RICO.

31

fishery products imported into Porto Rico during 1893, 1894, 1895, 1896, and 1897.

	Canned fish.		Shellfish.				Total.			
	Value.	Duty.	Kilos.	Lbs.	Value.	Duty.	Kilos.	Lbs.	Value.	Duty.
1							9,315,929	20,538,095	\$1,211,070.77	\$83,843.26
2	\$7,661.50	\$881.07					371,513	819,045	53,966.20	2,557.66
3							10,922	24,079	1,419.86	95.59
4	1,995.50	458.96					1,146	2,526	1,995.50	458.96
5	33,769.50	88.54	3,402	7,500	\$272.16	\$10.03	206,671	455,631	51,686.19	98.57
6	1,476.50	389.59	912	2,010	72.96		5,111	11,287	1,711.44	350.80
7	307.00	70.61					23,026	50,764	3,220.56	272.32
8	45,209.50	1,838.77	4,314	9,510	345.12	10.03	9,934,318	21,901,407	1,325,070.52	87,677.16
9							9,890,226	21,804,202	1,285,729.38	89,012.04
10	19,244.50	2,434.43	120	265	9.60		1,560,818	3,441,009	217,141.01	2,434.43
11			720	1,587	57.60	7.20	11,510	25,375	1,460.30	54.31
12	3,180.50	792.02	1,750	3,858	140.00	17.50	8,592	18,942	3,346.03	814.75
13	125,356.50	720.80	50	110	4.00		307,010	676,840	132,672.61	720.80
14							144	317	18.72	1.30
15	5,136.50	1,299.53					10,622	23,420	5,182.00	1,302.68
16	678.00	173.27					24,695	54,444	3,708.37	407.41
17	343.00	86.78					686	1,512	343.00	86.78
18	153,884.00	5,506.83	2,640	5,820	211.20	24.70	11,814,302	26,046,061	1,649,601.42	94,834.50
19							12,379,085	27,291,194	1,609,281.05	111,411.77
20	439.50	92.00	94	207	7.52	.75	770,374	1,698,383	100,469.15	6,993.25
21							32,639	71,957	4,244.07	293.76
22	1,210.50	278.41					2,421	5,337	1,210.50	278.41
23	266,151.50	2,800.00	4,481	9,879	358.48		564,687	1,244,921	270,137.37	2,800.00
24	39.00	8.97					78	172	39.00	8.97
25	404.00	92.90					1,788	3,942	531.40	101.72
26	470.00	107.00					3,249	7,162	770.17	131.30
27							7,645	16,854	993.85	68.81
28	268,714.50	3,379.28	4,575	10,086	366.00	.75	13,761,966	30,339,922	1,987,676.56	122,087.99
29							11,974,462	26,399,153	1,556,680.06	107,770.16
30							70,270	154,919	9,135.16	632.43
31	3,396.50	781.19	83	183	6.64	.83	735,590	1,621,097	98,135.96	7,340.45
32							45,974	101,385	5,976.62	413.77
33	2,115.50	496.57					10,071	22,203	2,874.70	539.13
34	124,068.50		23	51	1.84		334,529	737,510	135,298.31	
35	18.00	4.14					86	79	18.00	4.14
36	1,815.00	417.45					4,384	9,665	1,913.02	424.24
37	180.00	41.40					16,597	36,591	2,290.81	187.53
38							11	24	12.35	.86
39							20,600	45,195	2,665.00	184.50
40			137	302	10.96		137	302	10.96	
41	181,593.50	1,780.75	243	536	19.44	.83	13,212,561	29,128,693	1,815,010.89	117,497.21
42							12,722,700	28,048,735	1,653,871.00	115,000.84
43	982.00	225.89	115	253	8.00	1.15	2,228,829	4,913,724	289,948.60	20,307.71
44							44,433	97,958	5,776.29	399.92
45							18,799	41,445	2,443.87	169.40
46							391	862	50.83	3.53
47	2,283.50	530.37					7,109	15,672	2,613.96	553.25
48	139,317.50	429.16					371,717	819,495	149,135.49	431.37
49	71.50	17.49					1,063	2,344	191.10	25.73
50	8,563.30	2,002.45					87,646	193,226	18,430.90	2,057.13
51	191.00	43.93					10,216	22,522	1,469.42	132.47
52	151,408.80	3,249.29	115	253	8.00	1.15	15,492,903	34,155,983	2,123,931.46	139,661.35

32 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, from countries received and by ports of entry, the quantity,

Imported from—	Ports of entry.	Dry, pickled, and smoked fish.				Canned fish.		
		Kilos.	Lbs.	Value.	Duty.	Kilos.	Lbs.	
British North American provinces.	Ponce	5,933,104	13,080,247	\$771,303.52	\$53,397.94	.....	.....	1
	San Juan	3,380,410	7,452,524	439,453.30	30,513.73	.....	.....	2
	Mayaguez	2,235,907	4,929,328	290,587.91	20,529.66	.....	.....	3
	Arecibo	1,173,279	2,586,636	152,526.27	10,559.51	.....	.....	4
	Total	12,722,700	28,048,735	1,653,871.00	115,000.84	.....	.....	5
United States	Ponce	1,807,480	3,984,809	234,972.50	16,267.31	332	732	6
	San Juan	268,729	592,446	34,934.77	2,438.38	1,612	3,554	7
	Mayaguez	122,903	270,955	15,458.39	1,122.33	20	44	8
	Aguadilla	19,965	44,015	2,595.45	183.58	.....	.....	9
	Arecibo	7,673	16,916	997.49	69.07	.....	.....	10
	Total	2,226,750	4,909,141	288,958.60	20,080.67	1,964	4,330	11
Norway	San Juan	44,433	97,958	5,776.29	399.92	.....	.....	12
Sweden	San Juan	18,799	41,445	2,443.87	169.40	.....	.....	13
Scotland	San Juan	391	862	50.83	3.53	.....	.....	14
France	Ponce	2,434	5,366	316.42	21.91	368	811	15
	San Juan	108	238	14.04	.97	3,789	8,353	16
	Mayaguez .....	.....	.....	.....	.....	410	904	17
	Total	2,542	5,604	330.46	22.88	4,567	10,068	18
Spain	Ponce .....	.....	.....	.....	.....	11,616	25,609	19
	San Juan	73,317	161,636	9,531.21	.....	217,629	479,790	20
	Mayaguez	2,206	4,863	286.78	2.21	56,593	124,766	21
	Aguadilla .....	.....	.....	.....	.....	5,690	12,544	22
	Arecibo .....	.....	.....	.....	.....	4,666	10,287	23
	Total	75,523	166,499	9,817.99	2.21	296,194	652,996	24
Italy	Ponce .....	.....	.....	.....	.....	67	148	25
	San Juan	920	2,028	119.60	8.24	76	168	26
	Total	920	2,028	119.60	8.24	143	316	27
England	Ponce	70,421	155,252	9,854.73	633.79	16,430	36,222	28
	San Juan	99	218	12.87	.89	696	1,534	29
	Total	70,520	155,470	9,867.60	634.68	17,126	37,756	30
Germany	San Juan	9,834	21,680	1,278.42	88.54	382	842	31
	Grand total	15,172,412	33,449,422	1,972,514.66	136,410.91	320,376	706,308	32
Total	Ponce	7,813,439	17,225,674	1,016,447.17	70,320.95	28,813	63,522	33
	San Juan	3,797,040	8,371,035	493,615.20	33,623.60	224,184	494,241	34
	Mayaguez	2,361,016	5,205,146	306,333.08	21,654.20	57,023	125,714	35
	Aguadilla	19,965	44,015	2,595.45	183.58	5,690	12,544	36
	Arecibo	1,180,952	2,603,552	153,523.76	10,628.58	4,666	10,287	37
	Total	15,172,412	33,449,422	1,972,514.66	136,410.91	320,376	706,308	38

value, and duty paid on fishery products imported into Porto Rico in 1897.

	Canned fish.		Shellfish.				Total.			
	Value.	Duty.	Kilos.	Lbs.	Value.	Duty.	Kilos.	Lbs.	Value.	Duty.
1	-----	-----	-----	-----	-----	-----	5,933,104	13,060,247	\$771,303.52	\$53,397.94
2	-----	-----	-----	-----	-----	-----	3,380,416	7,452,524	439,453.30	30,513.73
3	-----	-----	-----	-----	-----	-----	2,235,907	4,929,328	290,587.91	20,529.66
4	-----	-----	-----	-----	-----	-----	1,173,279	2,586,666	152,526.27	10,559.51
5	-----	-----	-----	-----	-----	-----	12,722,700	28,048,735	1,653,871.00	115,000.84
6	\$166.00	\$38.17	-----	-----	-----	-----	1,807,812	3,985,541	235,138.50	16,305.48
7	806.00	185.42	115	253	\$8.00	\$1.15	270,456	596,253	35,748.77	2,624.95
8	10.00	2.30	-----	-----	-----	-----	122,923	270,999	15,468.39	1,124.63
9	-----	-----	-----	-----	-----	-----	19,965	44,015	2,595.45	183.58
10	-----	-----	-----	-----	-----	-----	7,673	16,916	997.49	69.07
11	982.00	225.89	115	253	8.00	1.15	2,228,829	4,913,724	289,948.60	20,307.71
12	-----	-----	-----	-----	-----	-----	44,433	97,958	5,776.29	399.92
13	-----	-----	-----	-----	-----	-----	18,799	41,445	2,443.87	169.40
14	-----	-----	-----	-----	-----	-----	391	862	50.83	3.53
15	184.00	42.31	-----	-----	-----	-----	2,802	6,177	500.42	64.22
16	1,894.50	435.78	-----	-----	-----	-----	3,897	8,591	1,908.54	436.75
17	205.00	52.28	-----	-----	-----	-----	410	904	205.00	52.28
18	2,283.50	530.37	-----	-----	-----	-----	7,109	15,673	2,613.96	553.25
19	5,808.00	-----	-----	-----	-----	-----	11,616	25,609	5,808.00	-----
20	108,814.50	-----	-----	-----	-----	-----	290,946	641,426	118,345.71	-----
21	19,517.00	429.16	-----	-----	-----	-----	58,799	129,629	19,803.78	431.37
22	2,845.00	-----	-----	-----	-----	-----	5,690	12,544	2,845.00	-----
23	2,333.00	-----	-----	-----	-----	-----	4,668	10,287	2,333.00	-----
24	139,317.50	429.16	-----	-----	-----	-----	371,717	819,495	149,135.49	431.37
25	83.50	7.70	-----	-----	-----	-----	67	148	33.50	7.70
26	88.00	9.79	-----	-----	-----	-----	996	2,196	157.60	18.03
27	71.50	17.49	-----	-----	-----	-----	1,063	2,344	191.10	25.73
28	8,215.30	1,922.91	-----	-----	-----	-----	86,851	191,474	18,070.03	2,556.70
29	348.00	79.54	-----	-----	-----	-----	795	1,752	360.87	80.43
30	8,563.30	2,002.45	-----	-----	-----	-----	87,646	193,226	18,430.90	2,637.13
31	191.00	43.93	-----	-----	-----	-----	10,216	22,522	1,469.42	132.47
32	151,408.80	3,249.29	115	253	8.00	1.15	15,492,903	34,155,983	2,123,931.46	139,661.35
33	14,406.80	2,011.09	-----	-----	-----	-----	7,842,252	17,289,196	1,030,853.97	72,332.04
34	112,092.00	754.46	115	253	8.00	1.15	4,021,339	8,865,529	605,715.20	34,379.21
35	19,732.00	483.74	-----	-----	-----	-----	2,418,039	5,330,860	326,065.08	22,137.94
36	2,333.00	-----	-----	-----	-----	-----	25,655	56,559	5,440.45	183.58
37	2,845.00	-----	-----	-----	-----	-----	1,185,618	2,613,839	155,856.76	10,628.58
38	151,408.80	3,249.29	115	253	8.00	1.15	15,492,903	34,155,983	2,123,931.46	139,661.35

CONCLUSION.

The change in the government of Porto Rico has been so recent that it will be some time before the old methods will become modified to suit new conditions, and so little is known of the local commercial fisheries of the island that predictions as to their future can not be safely made.

In supplying the island with the large amount of cured fish required annually, there will be changes by shippers and receivers in methods of handling, one of importance being a change from the long-time credit system. A knowledge of the coffee and sugar industries of the island is important to shippers, as return cargoes often have to be secured. The future imports of fishery products may reasonably be expected to come from sources that can lay them down at the lowest prices, and to some extent handle in return the products of the island.

As the Porto Ricans are conservative and slow to experiment with unfamiliar articles, some time will be required to introduce boneless or other fish preparations unknown to them. They are quick to appreciate low prices, and when they come to understand the good qualities of boneless fish, canned fish, and similar foods prepared in the United States, a large demand for good articles, at reasonably low prices, may be expected.

The local fisheries may possibly prove to be of considerable value, but time and capital will be needed to develop them. Different methods of capture and more energy in the prosecution of the fisheries are necessary to determine if a large supply can be depended upon. The species best adapted for curing or canning are yet to be ascertained.

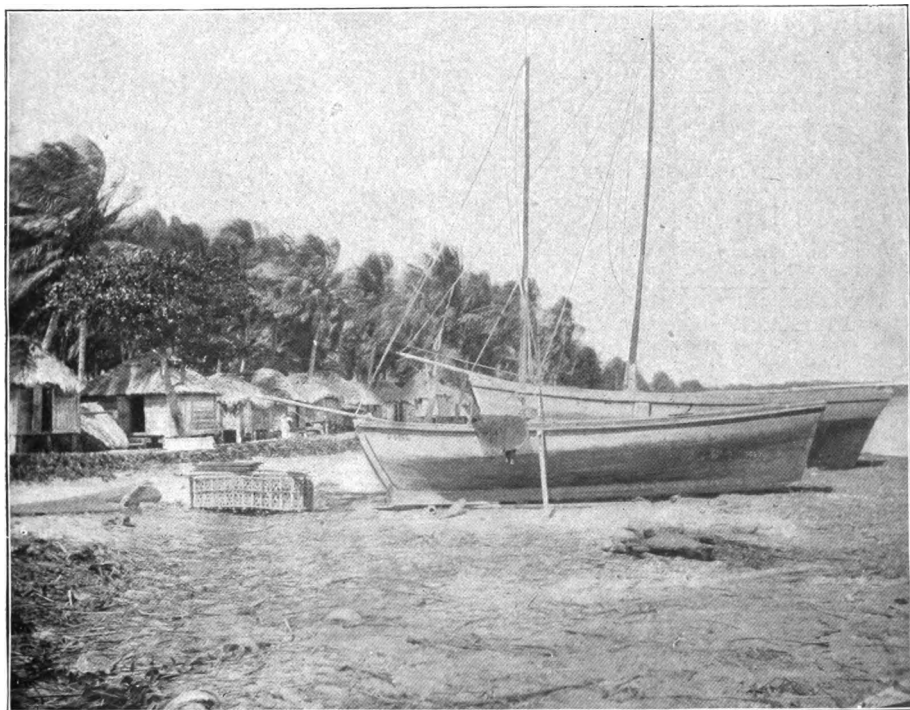
The entire absence of machine-made nets is to be noted. With the introduction of capital and the development of the fisheries, there would at once come a large demand for these goods. The few nets now used are hand-made by the poor fishermen, who are seldom able to buy more than a few balls of twine at a time, and no one has as yet seemed willing to advance capital or supplies to further increase the business.

A large variety of fine edible fish are found in the salt and fresh waters of Porto Rico, yet little attention is given to their capture and none to their cure. Only those living near the seacoast or some of the rivers ever have any fresh fish, and then only at high prices.

Cheap ice and quick transportation are two important factors in the fresh-fish business, and at present these are both lacking. Ice is to be procured at very few places, and the price, \$12 to \$15 a ton, is too high for its use in the fisheries. The few short lines of railroad have no express business, and no fresh fish are transported by rail. With few exceptions the common roads are so poor that merchandise has to be carried by pack animals. With improved transporting facilities and cheaper ice, the thickly settled interior could receive a more abundant supply of fresh-fish at more reasonable prices, to the benefit of both consumers and dealers.



FISHERMEN'S HOMES, PUNTA SANTIAGO.



FISHING BOATS AND FISHERMEN'S HOMES, PUNTA SANTIAGO.



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